



SEQLIST.TXT  
SEQUENCE LISTING



<110> Griffiths, Steven  
Ritchie, Rachael Jane

<120> Nucleic Acid And Amino Acid Sequences Of  
Infectious Salmon Anaemia Virus And Their Uses As Vaccines

<130> H-32318B

<140> US 10/734,782

<141> 2003-12-12

<150> US 10/049,086

<151> 2002-02-06

<150> PCT/GB00/02976

<151> 2000-08-07

<150> GB 0006674.6

<151> 2000-03-21

<150> GB 0005848.7

<151> 2000-03-11

<150> GB 9918588.6

<151> 1999-08-07

<160> 10

<170> FastSEQ for windows Version 4.0

<210> 1

<211> 1821

<212> DNA

<213> Infectious Salmon Anaemia Virus

<400> 1

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| tgttcctgaa | acttcggatg | cctttctaag  | tgatttgaga  | catctataca | tgtgtgttgc  | 120  |
| tttctgtgat | caacacaaaa | ccactggaga  | cgaatcaaga  | ttcaccaacc | tggaattact  | 180  |
| tgaccaagat | gaagcactag | gtgccccaaag | agcttttgaa  | gccaaacatg | gaataaaaagg | 240  |
| aggttcttta | ggagacgttc | ttgaccatga  | actgaaaaaag | gtcattgaa  | ttactttttac | 300  |
| ttctggaagt | ttgtatattg | ccgaacaaaag | aaaaagaaaag | actcaagcag | actcaataat  | 360  |
| tgtgtgctgt | tcagaaggac | ttaacgactt  | cagcgatatca | cacggagtgc | tagacatggg  | 420  |
| acttgtggaa | acaggggtga | atgcagtaag  | agatttctgc  | acacaaaacg | gaataccaat  | 480  |
| gaagataaat | caggtaggat | ccacgagaac  | accaacaccg  | atcagcacat | gcaaaatctc  | 540  |
| tgaacaaata | acacgacaga | ttaacagtac  | aattactgaa  | aggaaaatgg | aaacagtact  | 600  |
| ggcagcaatc | gcaattaaac | cagaactcaa  | actaactcag  | aaaggatgca | gaccttgtaa  | 660  |
| agaactagaa | gatgaaaata | ttctgtggat  | ggaccctcaa  | ttctgtgaaa | ttgatgaaag  | 720  |
| ttttccttac | agaggagggc | catacgggaa  | cttcctgcaa  | gaattgctgc | ttacaaccaa  | 780  |
| cgacgtagag | accaacggga | aagacagaga  | agaagtagta  | aagaagatac | tggaatacaa  | 840  |
| ggcgttcacc | gttgaaagtg | gtgaatgcat  | aataacactt  | ccagacaaaa | tgacttgttt  | 900  |
| cggagaacag | gagaagaaga | gaccagcaac  | aatagacgaa  | gtgagaaccg | caggagaaag  | 960  |
| gtttgaacag | agtgttaaac | cgaaaaccca  | aagatatgga  | aggttatcag | acaaatggat  | 1020 |
| ggagcttgaa | aagtttatct | ttactgcaag  | caaaacagaa  | gtggatactt | tcctttctgt  | 1080 |
| agggaccgaa | agacttgagt | cggttggagt  | gtgtgtcgga  | gctttacaca | gagcgaccac  | 1140 |

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<210> 2

<211> 578

<212> PRT

<213> Infectious Salmon Anaemia Virus

<400> 2

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His Leu Tyr Met Cys Val Ala Phe Cys Asp Gln His Lys Thr Thr Gly
 35     40     45
Asp Glu Ser Arg Phe Thr Asn Leu Glu Leu Leu Asp Gln Asp Glu Ala
 50     55     60
Leu Gly Ala Gln Arg Ala Phe Glu Ala Lys His Gly Ile Lys Gly Gly
 65     70     75     80
Ser Leu Gly Asp Val Leu Asp His Glu Leu Lys Lys Val Ile Glu Phe
 85     90     95
Thr Phe Thr Ser Gly Ser Leu Tyr Ile Ala Glu Gln Arg Lys Arg Lys
100    105    110
Thr Gln Ala Asp Ser Ile Ile Val Cys Val Ser Glu Gly Leu Asn Asp
115    120    125
Phe Ser Val Ser His Gly Val Leu Asp Met Gly Leu Val Glu Thr Gly
130    135    140
Val Asn Ala Val Arg Asp Phe Cys Thr Gln Asn Gly Ile Pro Met Lys
145    150    155    160
Ile Asn Gln Val Gly Ser Thr Arg Thr Pro Thr Pro Ile Ser Thr Cys
165    170    175
Lys Ile Ser Glu Gln Ile Thr Arg Gln Ile Asn Ser Thr Ile Thr Glu
180    185    190
Arg Lys Met Glu Thr Val Leu Ala Ala Ile Ala Ile Lys Pro Glu Leu
195    200    205
Lys Leu Thr Gln Lys Gly Cys Arg Pro Cys Lys Glu Leu Glu Asp Glu
210    215    220
Asn Ile Leu Trp Met Asp Pro Gln Phe Cys Glu Ile Asp Glu Ser Phe
225    230    235    240
Pro Tyr Arg Gly Gly Pro Tyr Gly Asn Phe Leu Gln Glu Leu Leu Leu
245    250    255
Thr Thr Asn Asp Val Glu Thr Asn Gly Lys Asp Arg Glu Glu Val Val
260    265    270
Lys Lys Ile Leu Asp Asn Lys Ala Phe Thr Val Glu Ser Gly Glu Cys
275    280    285
Ile Ile Thr Leu Pro Asp Lys Met Thr Cys Phe Gly Glu Gln Glu Lys
290    295    300
Lys Arg Pro Ala Thr Ile Asp Glu Val Arg Thr Ala Gly Glu Arg Phe
305    310    315    320

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SEQLIST.TXT

Glu Gln Ser Val Lys Pro Lys Thr Gln Arg Tyr Gly Arg Leu Ser Asp  
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 Lys Trp Met Glu Leu Glu Lys Phe Ile Phe Thr Ala Ser Lys Thr Glu  
 340 345 350  
 Val Asp Thr Phe Leu Ser Val Gly Thr Glu Arg Leu Glu Ser Val Gly  
 355 360 365  
 Val Cys Val Gly Ala Leu His Arg Ala Thr Thr Thr Arg Ile Ile Arg  
 370 375 380  
 Pro Met Ile Gln Gly Gly Lys Cys Trp Gly Met Met Phe Lys Thr Lys  
 385 390 395 400  
 Ser Lys Met Gly Asp Thr Arg Lys Glu Gly Tyr Cys His Ala Ile Ile  
 405 410 415  
 Phe Gly Lys Gly Glu Asp Lys Ser Gly Gln Asn Lys Met Thr Met Met  
 420 425 430  
 Gly Lys Thr Val His Trp His Leu Arg Val Val Lys Ser Lys Gly Asp  
 435 440 445  
 Trp Met Ala Gln Gln Leu Cys Ala Asn Lys Ser Arg Ile Trp Glu His  
 450 455 460  
 Asp Pro Glu Leu Val Thr Glu Gly Val Thr Val Leu Met Thr Pro Phe  
 465 470 475 480  
 Ser Gln Lys Ile Ala Thr Ile Ser Arg Trp Arg Ala Met Arg Leu Asp  
 485 490 495  
 Ser Met Phe His Val Ser Ser Ala Trp His His Ser Pro Ala Cys Glu  
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 515 520 525  
 Asn Gln Lys Arg Asp Trp Gly Val Val Gly Ser Met Glu Asp Met Val  
 530 535 540  
 Lys Glu Val Glu Glu Ile Gly Glu His Leu Gln Thr Ala Cys Asp Phe  
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 Thr Gln

<210> 3  
 <211> 2018  
 <212> DNA  
 <213> Infectious Salmon Anaemia Virus

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 gagcagtggc agcagcaatt gaaagatcag ttgaatttga caatttctca aaagaagcag 360  
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 acaacagaag gaagaacaaa ggggtctcaa acatggccta caatctgtct ctattcatag 480  
 ggatgggtgt tcctgtcttc actactttct tcagtgtctat cctatcagaa ggtgaaatga 540  
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 cattcaggca gagtagacct aaaagatcgg actacagaaa agggcaaggt tccaaggcta 780  
 cagaatcaag catctccaac caatgtatgg cactgattat gaaatctgtg ctgtcagcag 840  
 accaactttt tgctccggga gtgaagatga tgaggacgaa cggtttcaat gcgtcgtaca 900  
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SEQLIST.TXT

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cacctatttc cagtctcatg atgtacatcc aagaaggcaa ctctgtactg gcaatggatt 1260
tcatgaaaaa cggagaggac gcctgcaaga tctgcagaga agccaaactg aaagtggggg 1320
taaacagtac gttcacaatg tcagtagcta gaacatgctg tgcatgtgtca atgggtgcaa 1380
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<210> 4

<211> 616

<212> PRT

<213> Infectious Salmon Anaemia Virus

<400> 4

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Tyr Arg Glu Asp Arg Gly Thr Ser Leu Leu Gln Lys Ala Phe Ala Gly
          35          40          45
Thr Glu Asp Glu Phe Trp Val Glu Leu Asp Gln Asp Val Tyr Val Asp
          50          55          60
Lys Lys Ile Arg Lys Phe Leu Glu Glu Glu Lys Met Lys Asp Met Ser
 65          70          75          80
Thr Arg Val Ser Gly Ala Val Ala Ala Ala Ile Glu Arg Ser Val Glu
          85          90          95
Phe Asp Asn Phe Ser Lys Glu Ala Ala Ala Asn Ile Glu Met Ala Gly
          100          105          110
Val Asp Asp Glu Glu Ala Gly Gly Ser Gly Leu Val Asp Asn Arg Arg
          115          120          125
Lys Asn Lys Gly Val Ser Asn Met Ala Tyr Asn Leu Ser Leu Phe Ile
 130          135          140
Gly Met Val Phe Pro Ala Leu Thr Thr Phe Phe Ser Ala Ile Leu Ser
 145          150          155          160
Glu Gly Glu Met Ser Ile Trp Gln Asn Gly Gln Ala Ile Ile Arg Ile
          165          170          175
Leu Ala Leu Ala Asp Glu Asp Gly Lys Arg Gln Thr Arg Thr Gly Gly
          180          185          190
Gln Arg Val Asp Met Ala Asp Val Thr Lys Leu Asn Val Val Thr Ala
          195          200          205
Asn Gly Lys Val Lys Gln Val Glu Val Asn Leu Asn Asp Leu Lys Ala
 210          215          220
Ala Phe Arg Gln Ser Arg Pro Lys Arg Ser Asp Tyr Arg Lys Gly Gln
 225          230          235          240
Gly Ser Lys Ala Thr Glu Ser Ser Ile Ser Asn Gln Cys Met Ala Leu
          245          250          255
Ile Met Lys Ser Val Leu Ser Ala Asp Gln Leu Phe Ala Pro Gly Val
          260          265          270
Lys Met Met Arg Thr Asn Gly Phe Asn Ala Ser Tyr Thr Thr Leu Ala

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SEQLIST.TXT

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gly | 275 | Ala | Asn | Ile | Pro | Ser | 280 | Lys | Tyr | Leu | Arg | His | 285 | Met | Arg | Asn | Cys |
|     | 290 |     |     |     |     |     | 295 |     |     |     |     |     | 300 |     |     |     |     |     |
| Gly | Gly | Val | Ala | Leu | Asp | Leu | Met | Gly | Met | Lys | Arg | Ile | Lys | Asn | Ser |     |     |     |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |     |     |
| Pro | Glu | Gly | Ala | Lys | Ser | Lys | Ile | Phe | Ser | Ile | Ile | Gln | Lys | Lys | Val |     |     |     |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |     |     |     |
| Arg | Gly | Arg | Cys | Arg | Thr | Glu | Glu | Gln | Arg | Leu | Leu | Thr | Ser | Ala | Leu |     |     |     |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |     |     |     |
| Lys | Ile | Ser | Asp | Gly | Glu | Asn | Lys | Phe | Gln | Arg | Ile | Met | Asp | Thr | Leu |     |     |     |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |     |     |     |
| Cys | Thr | Ser | Phe | Leu | Ile | Asp | Pro | Pro | Arg | Thr | Thr | Lys | Cys | Phe | Ile |     |     |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     |     | 380 |     |     |     |     |     |     |
| Pro | Pro | Ile | Ser | Ser | Leu | Met | Met | Tyr | Ile | Gln | Glu | Gly | Asn | Ser | Val |     |     |     |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |
| Leu | Ala | Met | Asp | Phe | Met | Lys | Asn | Gly | Glu | Asp | Ala | Cys | Lys | Ile | Cys |     |     |     |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     |
| Arg | Glu | Ala | Lys | Leu | Lys | Val | Gly | Val | Asn | Ser | Thr | Phe | Thr | Met | Ser |     |     |     |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     |     |
| Val | Ala | Arg | Thr | Cys | Val | Ala | Val | Ser | Met | Val | Ala | Thr | Ala | Phe | Cys |     |     |     |
|     | 435 |     |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     |     |     |
| Ser | Ala | Asp | Ile | Ile | Glu | Asn | Ala | Val | Pro | Gly | Ser | Glu | Arg | Tyr | Arg |     |     |     |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |     |     |     |
| Ser | Asn | Ile | Lys | Ala | Asn | Thr | Thr | Lys | Pro | Lys | Lys | Asp | Ser | Thr | Tyr |     |     |     |
|     | 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |     |     |     |
| Thr | Ile | Gln | Gly | Leu | Arg | Leu | Ser | Asn | Val | Arg | Tyr | Glu | Ala | Arg | Pro |     |     |     |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |     |     |     |
| Glu | Thr | Ser | Gln | Ser | Asn | Thr | Asp | Arg | Ser | Trp | Gln | Val | Asn | Val | Thr |     |     |     |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |     |     |     |
| Asp | Ser | Phe | Gly | Gly | Leu | Ala | Val | Phe | Asn | Gln | Gly | Ala | Ile | Arg | Glu |     |     |     |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |     |     |     |
| Met | Leu | Gly | Asp | Gly | Thr | Ser | Glu | Thr | Thr | Ser | Val | Asn | Val | Arg | Ala |     |     |     |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |     |     |     |
| Leu | Val | Lys | Arg | Ile | Leu | Lys | Ser | Ala | Ser | Glu | Arg | Ser | Ala | Arg | Ala |     |     |     |
|     | 545 |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |     |     |     |
| Val | Lys | Thr | Phe | Met | Val | Gly | Glu | Gln | Gly | Lys | Ser | Ala | Ile | Val | Ile |     |     |     |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |     |     |     |     |
| Ser | Gly | Val | Gly | Leu | Phe | Ser | Ile | Asp | Phe | Glu | Gly | Val | Glu | Glu | Ala |     |     |     |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |     |     |     |
| Glu | Arg | Ile | Thr | Asp | Met | Thr | Pro | Glu | Ile | Glu | Phe | Asp | Glu | Asp | Asp |     |     |     |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |     |     |     |
| Glu | Glu | Glu | Glu | Asp | Ile | Asp | Ile |     |     |     |     |     |     |     |     |     |     |     |
|     | 610 |     |     |     |     | 615 |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 5

<211> 1050

<212> DNA

<213> Infectious Salmon Anaemia Virus

<400> 5

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| cttactgaaa  | cgggggtcatg | tgtctcgttt  | tacggagatg  | atgaaccagg | tgaagggtcc  | 120 |
| tgcgaacttg  | cctctgaaaa  | catggatttt  | ccaagttgtc  | ctctggggaa | tgagatgac   | 180 |
| ttctgtctgt  | cgctggcgct  | aagcacaatg  | agatgggtctg | ggatgaccaa | gagaaacaac  | 240 |
| ttcatggaca  | gattcattgg  | aagttttgtt  | cactgtacac  | cagtgatgat | ctggtcgtat  | 300 |
| ggaaattttgt | ccaagaaaag  | ccatcacaaa  | atggtttgcc  | acacttgccc | agacgagtac  | 360 |
| aagttcagtg  | acaaggacga  | gatgcaggga  | tactatgagg  | gatgtctaga | ggcttctact  | 420 |
| gacattttcc  | ttgatgaact  | tgctactgtt  | gttacagggtg | gcttctttcc | tgctcggactc | 480 |

SEQLIST.TXT

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aatgagagag ctggagttga gcttagggct ggacttcact tcagaatgtg attggttgaa 780
aacttgttat gtaacaaga attttggtt tttgtcagaa aaagaaattg ctgtaaacat 840
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<210> 6  
 <211> 256  
 <212> PRT  
 <213> Infectious Salmon Anaemia Virus

<400> 6

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| Met | Ser | Gly | Phe | Asn | Leu | Glu | Val | Met | Val | Pro | Glu | Gln | Gly | Gly | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Val | Val | Phe | Ser | Leu | Thr | Glu | Thr | Gly | Ser | Cys | Val | Ser | Phe | Tyr | Gly |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asp | Asp | Glu | Pro | Gly | Glu | Gly | Ser | Cys | Glu | Leu | Ala | Ser | Glu | Asn | Met |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Asp | Phe | Pro | Ser | Cys | Pro | Leu | Gly | Asn | Gly | Asp | Asp | Phe | Cys | Leu | Ser |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Leu | Ala | Leu | Ser | Thr | Met | Arg | Trp | Ser | Gly | Met | Thr | Lys | Arg | Asn | Asn |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Phe | Met | Asp | Arg | Phe | Ile | Gly | Ser | Phe | Val | His | Cys | Thr | Pro | Val | Met |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Trp | Ser | Tyr | Gly | Asn | Leu | Ser | Lys | Lys | Ser | His | His | Lys | Met | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Cys | His | Thr | Cys | Pro | Asp | Glu | Tyr | Lys | Phe | Ser | Asp | Lys | Asp | Glu | Met |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Gln | Gly | Tyr | Tyr | Glu | Gly | Cys | Leu | Glu | Ala | Ser | Thr | Asp | Ile | Phe | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asp | Glu | Leu | Ala | Thr | Val | Val | Thr | Gly | Gly | Phe | Phe | Pro | Val | Gly | Leu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Lys | Gly | Ser | Trp | Gly | Gly | Trp | Tyr | Leu | Lys | Tyr | Val | Arg | Tyr | Ala | Gly |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Leu | Ala | Gly | Ser | Ser | Gly | Phe | Ile | Val | Asn | Gln | Arg | Phe | Tyr | Asp |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Arg | Ala | Gln | Asn | Lys | Thr | Gly | Ser | Arg | Val | Val | Ser | Met | Val | Glu | Met |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Asp | Gly | Asp | Gly | Leu | Ser | Phe | Ile | Tyr | Glu | Lys | Pro | Ser | Val | Tyr | His |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ser | Asp | Gly | Cys | Thr | Gly | Ser | Ala | Ala | Arg | Phe | Trp | Lys | Arg | Asp | His |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     | 240 |     |
| Asn | Glu | Arg | Ala | Gly | Val | Glu | Leu | Arg | Ala | Gly | Leu | His | Phe | Arg | Met |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |

<210> 7  
 <211> 140  
 <212> PRT  
 <213> Infectious Salmon Anaemia Virus

<400> 7

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Gly | Phe | Asn | Leu | Glu | Val | Met | Val | Pro | Glu | Gln | Gly | Gly | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |

SEQLIST.TXT

```

Val Val Phe Ser Leu Thr Glu Thr Gly Ser Cys Val Ser Phe Tyr Gly
      20      25      30
Asp Asp Glu Pro Gly Gly Phe Phe Pro Val Gly Leu Lys Gly Ser Trp
      35      40      45
Gly Gly Ser Tyr Leu Lys Tyr Val Arg Tyr Ala Gly Pro Leu Ala Gly
      50      55      60
Ser Ser Gly Phe Ile Val Asn Gln Arg Phe Tyr Asp Arg Ala Gln Asn
      65      70      75      80
Lys Thr Gly Ser Arg Val Val Ser Met Val Glu Met Asp Gly Asp Gly
      85      90      95
Leu Ser Phe Ile Tyr Glu Lys Pro Ser Val Tyr His Ser Asp Gly Cys
      100      105      110
Thr Gly Ser Ala Ala Arg Phe Trp Lys Arg Asp His Asn Glu Arg Ala
      115      120      125
Gly Val Glu Leu Arg Ala Gly Leu His Phe Arg Met
      130      135      140

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<210> 8  
 <211> 146  
 <212> PRT  
 <213> Infectious Salmon Anaemia Virus

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<400> 8
Met Asn Leu Leu Leu Leu Gln Val Ala Ser Phe Leu Ser Asp Ser
  1      5      10
Lys Val Pro Gly Glu Asp Gly Thr Ser Ser Thr Ser Gly Met Leu Asp
      20      25      30
Leu Leu Arg Asp Gln Val Asp Ser Leu Ser Ile Asn Asp Ser Thr Thr
      35      40      45
Glu Pro Lys Thr Arg Leu Asp Pro Gly Leu Tyr Pro Trp Leu Lys Trp
      50      55      60
Thr Glu Thr Ala Tyr Arg Ser Ser Thr Arg Ser Leu Ala Ser Thr Ile
      65      70      75      80
Val Met Gly Ala Leu Gly Gln Gln Arg Gly Ser Gly Asn Gly Ile Thr
      85      90      95
Met Arg Glu Leu Glu Leu Ser Leu Gly Leu Asp Phe Thr Ser Glu Cys
      100      105      110
Asp Trp Leu Lys Thr Cys Tyr Val Asn Lys Asn Phe Val Phe Leu Ser
      115      120      125
Glu Lys Glu Ile Ala Val Asn Met Glu Val Glu Lys Phe Ile Cys Asn
      130      135      140
Glu Asn
145

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<210> 9  
 <211> 1033  
 <212> DNA  
 <213> Infectious Salmon Anaemia Virus

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<400> 9
cagtcgtcta tgtcttagaa accatcctga caccacctgg ataggtgact cccgaagcga 60
tcaatcaagg gtgaaccaac agtctcttga tctgggttaca aacttcaagg gaattctaca 120
agccaagaac gggaatggtc tcatgaagca gatgagcgga aggttcccaa gtgattggta 180
ccaacctact acaaagtata ggattctata cattggtaca aacgactgca ctgagggccc 240
taacgacgtg atcataccga cgtcaatgac actagacaat gtggcaaggg acctgtacct 300
gggagcatgt cgaggagatg taagagtgc accaaccttc gtgggagcag ctgagcttgg 360
actgattggg agaacagatg ccttaacagg attttctgta aaggtgctga ctttcaacaa 420

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SEQLIST.TXT

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ccctactatt gtagtagttg gactaaatgg aatgtcagga atctacaagg tctgcattgc 480
tgcttcttct ggaaacgtag gcggagtcaa cttggtgaac ggatgcggat acttcagcgc 540
tcctctgaga ttcgacaact tcaaaggaca gatctacgtg tcagacacct ttgaagtcag 600
aggaacaaag aacaaatgtg tcatacttag atcttctagc aatgctcctt tgtgtacaca 660
tatcaaaaga aacattgagt tggatgagta cgttgacaca ccaaactctg ggggcgtata 720
tccttctgat gggtttgatt ctcttcacgg ctctgcttcg attagaactt ttttaacaga 780
ggcactgaca tgtccagggt tagattggga cagaattgat gcagcttcat gcgagtatga 840
cagttgtcct aaacttgtga aagaatttga ccaaacaggg ctcggaaaca cagatactca 900
aataatgaga gagctagaag cacaaaagga gatgattggg aaacttggca gaaacattac 960
agacgtaaac aacagagtag atgctattcc accacagctt agcaacatct tcattcttat 1020
gggagtggca ggt                                     1033

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<210> 10

<211> 344

<212> PRT

<213> Infectious Salmon Anaemia Virus

<400> 10

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Ser Arg Leu Cys Leu Arg Asn His Pro Asp Thr Thr Trp Ile Gly Asp
1      5      10      15
Ser Arg Ser Asp Gln Ser Arg Val Asn Gln Gln Ser Leu Asp Leu Val
20     25     30
Thr Asn Phe Lys Gly Ile Leu Gln Ala Lys Asn Gly Asn Gly Leu Met
35     40     45
Lys Gln Met Ser Gly Arg Phe Pro Ser Asp Trp Tyr Gln Pro Thr Thr
50     55     60
Lys Tyr Arg Ile Leu Tyr Ile Gly Thr Asn Asp Cys Thr Glu Gly Pro
65     70     75     80
Asn Asp Val Ile Ile Pro Thr Ser Met Thr Leu Asp Asn Val Ala Arg
85     90     95
Asp Leu Tyr Leu Gly Ala Cys Arg Gly Asp Val Arg Val Thr Pro Thr
100    105    110
Phe Val Gly Ala Ala Glu Leu Gly Leu Ile Gly Arg Thr Asp Ala Leu
115    120    125
Thr Gly Phe Ser Val Lys Val Leu Thr Phe Asn Asn Pro Thr Ile Val
130    135    140
Val Val Gly Leu Asn Gly Met Ser Gly Ile Tyr Lys Val Cys Ile Ala
145    150    155    160
Ala Ser Ser Gly Asn Val Gly Gly Val Asn Leu Val Asn Gly Cys Gly
165    170    175
Tyr Phe Ser Ala Pro Leu Arg Phe Asp Asn Phe Lys Gly Gln Ile Tyr
180    185    190
Val Ser Asp Thr Phe Glu Val Arg Gly Thr Lys Asn Lys Cys Val Ile
195    200    205
Leu Arg Ser Ser Ser Asn Ala Pro Leu Cys Thr His Ile Lys Arg Asn
210    215    220
Ile Glu Leu Asp Glu Tyr Val Asp Thr Pro Asn Thr Gly Gly Val Tyr
225    230    235    240
Pro Ser Asp Gly Phe Asp Ser Leu His Gly Ser Ala Ser Ile Arg Thr
245    250    255
Phe Leu Thr Glu Ala Leu Thr Cys Pro Gly Val Asp Trp Asp Arg Ile
260    265    270
Asp Ala Ala Ser Cys Glu Tyr Asp Ser Cys Pro Lys Leu Val Lys Glu
275    280    285
Phe Asp Gln Thr Gly Leu Gly Asn Thr Asp Thr Gln Ile Met Arg Glu
290    295    300
Leu Glu Ala Gln Lys Glu Met Ile Gly Lys Leu Gly Arg Asn Ile Thr
305    310    315    320
Asp Val Asn Asn Arg Val Asp Ala Ile Pro Pro Gln Leu Ser Asn Ile

```



Phe Ile Ser Met Gly val Ala Gly  
340

SEQLIST.TXT  
330

335